Community Assessment:

Tesuque Valley

Introduction:

The Firewise Communities/USA program is designed to provide an effective management approach for preserving wildland living aesthetics. The program can be tailored for adoption by any community and/or neighborhood association that is committed to ensuring its citizens maximum protection from wildland fire. The following community assessment is intended as a resource to be used by the Tesuque Valley residents for creating a wildfire safety action plan.

Definition of a Home Ignition Zone

Tesuque Valley is located in a wildfire environment. Wildfires will happen. The only variables are **(a)** where the wildfire will occur, **(b)** when it will occur, and **(c)** what the relevant conditions will be at that time. It is this last variable that homeowners can influence by their actions before fire appears. This assessment examines the area's exposure to wildfire as it relates to ignition potential. The assessment does not focus on specific homes, but examines the community as a whole.

A house burns because of its interrelationship with its immediate surroundings, an area called the "home ignition zone". To avoid a home ignition, nearby fuels must be reduced or interrupted and combustible materials found on or up against the home must be protected or eliminated. Homeowners do have the ability to significantly impact their home ignition zone in either a positive or negative manner. Attention to the issue and some relatively simple actions will have a positive impact; inattention, procrastination or denial will have the opposite effect. To avoid a home ignition, a homeowner must eliminate the wildfire's potential relationship with his/her house. This can be

accomplished by interrupting the natural path a fire takes. Changing a fire's path by clearing a home ignition zone is an easy-to-accomplish task that can result in avoiding home loss. To accomplish this, items such as flammable vegetation or material must be removed from the area immediately around the structure to prevent flames from contacting it. Also, reducing the volume of live vegetation will affect the intensity of the wildfire as it enters the home ignition zone.

Included in this assessment are observations made while visiting Tesuque Valley. The assessment addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the home ignition zones of affected residents. This zone principally determines the potential for home ignitions during a wildland fire; it includes a house and its immediate surroundings within 100 to 150 feet. The result of the assessment is that wildfire behavior will be dominated by the residential characteristics of this area. The good news is that by addressing community vulnerabilities, residents will be able to substantially reduce their exposure to loss. Relatively small investments of time and effort will reap great rewards in wildfire safety.

While each home ignition zone is an independent entity, managed by the owner of the individual property, the combined home ignition zones in a development can form either an invitation to wildfire or a barrier. This is further complicated by overlapping home ignition zones found in most of this area; the typical lot sizes result in relatively close proximity to neighboring structures or unbuilt lots. Embers produced by burning vegetation or structures on one lot can easily drift onto adjacent lots, and these can lead to new ignitions and spot fires. This is why a community approach is just as important as the need for individual property owners to protect their individual homes. It is also vital to recognize that in the event of a major fire emergency, there simply won't be enough fire trucks and crews to protect all or even a large fraction of the homes in the area. It will often come down to the extent of previous work accomplished in the home ignition zone to make the difference between home loss and survival.

Typical Wildfire Characteristics:

Fire intensity and spread rate depend on the fuel type and condition (live/dead), the weather conditions prior and during ignition, and the topography. Generally the following relationships hold between the fire behavior and the fuel, weather and topography.

- **Fine fuels ignite more easily and spread faster with higher intensities than coarser fuels.** For a given fuel, the more there is and the more continuous it is, the faster the fire spreads and the higher the intensities. Fine fuels take a shorter time to burn out than coarser fuels.

- **The weather conditions affect the moisture content of the dead and live vegetative fuels.** Dead fine fuel moisture content is highly dependent on the relative humidity and the degree of sun exposure. The lower the relative humidity and the greater the sun exposure, the lower will be the fuel moisture content.

Lower fuel moistures produce higher spread rates and fire intensities.

- **Wind speed significantly influences the rate of fire spread and fire intensity.** The higher the wind speed, the greater the spread rate and intensity.

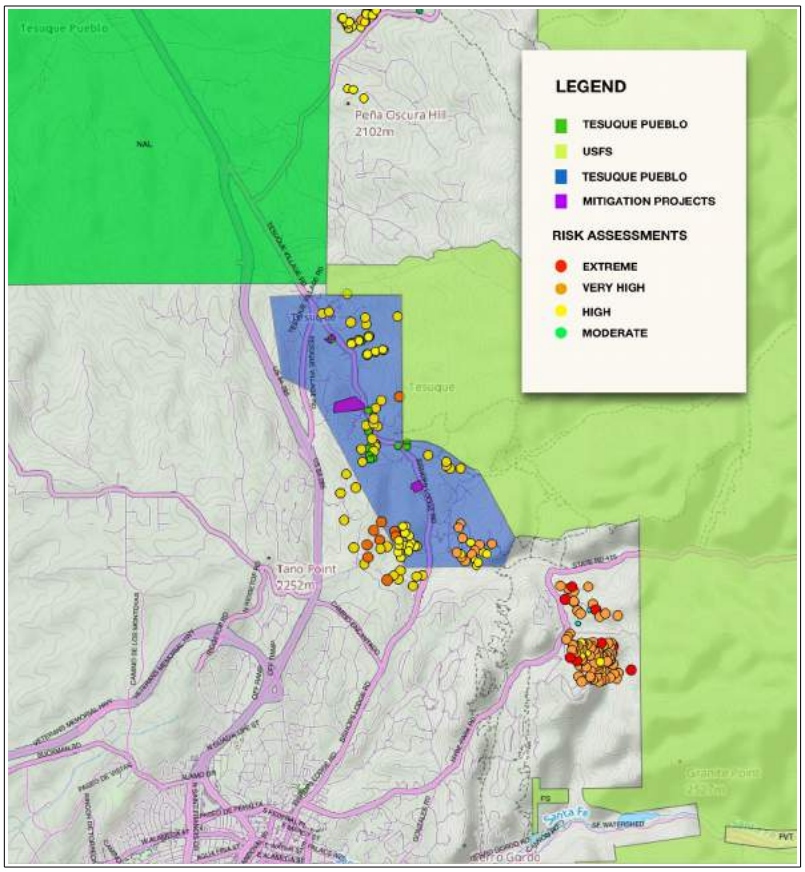
- **Topography influences fire behavior principally by the steepness of the slope.** However, the configuration of the terrain such as narrow draws, saddles and so forth can influence fire spread and intensity. In general, the steeper the slope, the higher the uphill fire spread and intensity.

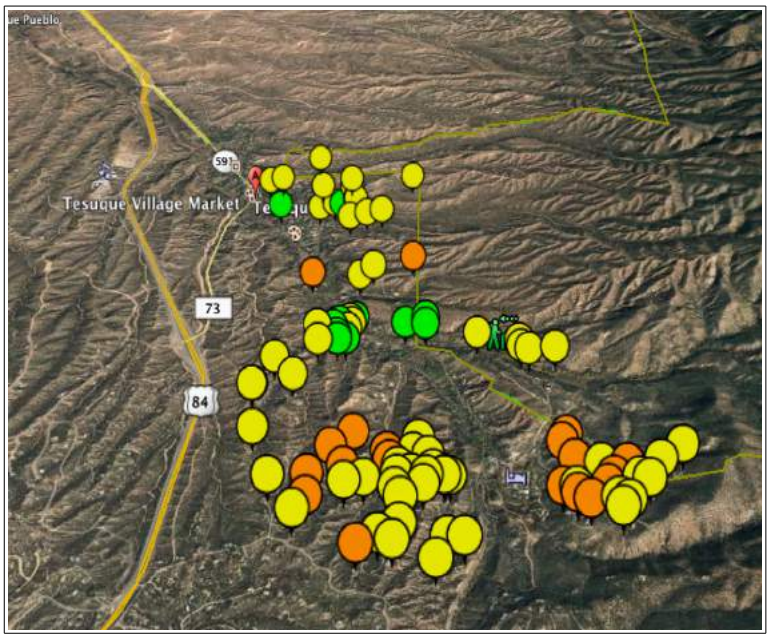
Site Description:

Tesuque Valley sits at an elevation of 6500-7100 feet. Lots range in size and elevation, with some heavily fueled and often landscaped with coyote fences, and wood mulch within the 30 foot zone and heavy pinon-juniper beyond. Others are riparian, dominated by large, open meadows and deciduous trees.

Vegetative cover throughout the community is primarily pinon-juniper. The community is bordered to the east by USFS lands, to the north by Tesuque Pueblo and the west and south by the city of Santa Fe.

A wildfire would primarily be spread through the community by fine fuels such as pine needles, dried shrubs and dead grasses, laddering to pinon and juniper. Both the flashy fuels and the topography are a hazard to the homes in the community because they can support fast-moving fires that may damage property before suppression forces can arrive.





Assessment Process

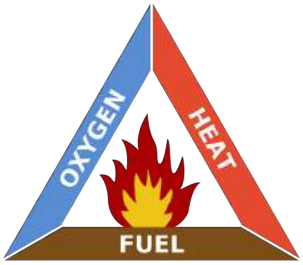
The assessment process started in July 2016 after an initial meeting with members of the Tesuque Valley Community Association. During that time the WUI Specialist studied the

challenges posed by fuel loading, home site locations, access issues and drought implications. The purposes of the assessment was to identify common strengths enjoyed by residents of as well as look for conditions that could and/or should be modified to increase the area's level of wildfire readiness.

Important Considerations

The Firewise Communities/USA program seeks to create a sustainable balance that will allow communities to live safely while maintaining environmental harmony in a WUI setting. Homeowners already balance their decisions about fire protection measures against their desire for certain flammable components on their properties. It is important for them to understand the implications of the choices they are making. These choices directly relate to the ignitability of their home ignition zones during a wildfire.

The Fire Triangles



The starting point is the classic "fire triangle," which points out the three basic things must be present for fire to exist: fuel, oxygen, and heat. If any one of those are absent or below a critical level, fire will not occur or continue. Thus, when water is sprayed on burning wood, it cools the material below the temperature needed to maintain combustion. Or when a dry chemical is sprayed from an extinguisher on a kitchen grease fire, it smothers the fire by separating the grease from the oxygen supply in the atmosphere. Finally, if there is no combustible material available to ignite, the presence of heat and oxygen alone will not result in a sustained fire.

There is also a wildland" fire behavior triangle" with the elements of fuel, weather and topography as the factors which control the spread and intensity of a wildland fire.

Property owners have no control over the availability of atmospheric oxygen, weather or topography, and while we take steps to reduce or eliminate accidental heat sources, there are ignitions such as lightning strikes that are beyond our control. But property owners do have the ability to influence fuels, the common element of both fire triangles.

Recognizing Fuels

Fuel is anything combustible. It can be trees and other natural vegetation, wood products of all kinds (lumber, siding, shakes, plywood, furniture, paper), carpeting,

drapes, fabrics, most synthetics and plastics, rubber products, motor vehicle and heating fuels, and on and on. Fuels are everywhere around us in our daily lives, but we seldom view them as such. When it comes time to review our vulnerability to fire, we need to adopt a firefighter's perspective as we look over our homes and yards. If the material is combustible, it is fuel. It may be part of something we consider to be essential to our lives, but it is still fuel to a fire. Lack of recognition of fuels, or denial of their existence, simply puts us at greater risk. It's what we choose to do about the fuels around us that will ultimately make a difference.

Reducing Fuel Volume

When large, uninterrupted quantities of natural fuels exist, a serious fire danger exists. For example, a dense, overstocked forest is generally recognized as a serious fire concern. The sheer volume of fuel that is available in a large, heavy stand of trees with a continuous fire ladder has the potential not only for intense heat at that location but also the production of huge quantities of embers from torching trees. Reducing the volume of fuel in an area is a recognized technique for reducing fire hazards. This is part of the thinning process used in creating shaded fuel breaks to offer greater protection to communities in forested areas.

Separating Fuels

Closely associated with the reduction of overall fuel volume is the practice of separating or interrupting fuels. Aside from its application in fuel breaks, this technique is perhaps the single most important step a property owner can take in reducing vegetation fire hazards on residential parcels. The basic principal behind fuel separation is quite simple: create gaps between fuels such that a fire burning one piece of fuel cannot easily ignite an adjacent combustible object. If a gap exists between one stand of trees and the next, there is less chance of a fire progressing from stand to stand. The same

thing is true of flammable brush or shrubs; interrupting the growth inhibits the progression of fire. A fuel gap around the perimeter of the structure is even more important, since it separates the structure from combustible materials that might otherwise be ignition sources. This is called horizontal separation, because a gap exists horizontally between fuels.

Vertical separation is also important. This is accomplished by removing the lower limbs of trees and smaller trees and brush under a tree to create a gap between the surface and ladder fuels that would be carrying the fire into the tree crown to prevent torching. If there are flammable shrubs or brush specimens in the same area as the trees, the gap between the lower tree limbs and the top of the surface vegetation needs to be adjusted so that lower flames do not ignite the tree branches. Avoid planting flammable shrubs directly beneath trees. Avoid planting flammable shrubs under raised decks for the same reason.

Observations and Recommendations

Looking first at the ignition vulnerabilities observed during the community inspection, this report groups the issues into physical zones, starting at the structure and working outward from there. No attempt has been made to quantify the number of instances that such problematic issues were observed. Recommended remedial action is shown in italic type.

Wood Piles Next to or Under Structures
The desire to have a handy supply of firewood causes a number of residents to stack their wood supply right up next to their home, under raised decks or in other spots that are close to structures. Firewood stacks are excellent “ember magnets,” allowing embers to drift into small openings and eventually ignite the wood. If that stack is in close proximity to the residence or any flammable portion of it, the fire can rapidly progress to the structure.

A more prudent practice is to keep firewood piles a safe distance from structures (a thirty foot gap is recommended). Another alternative is to screen firewood stacks with hardware cloth (openings no larger than1/8 inch) such that embers cannot reach the wood; make sure that the screening completely encloses the stack, with no gaps at the bottom and with the metal screen spaced about an inch away from the wood so that embers that land on the screen cannot ignite the outer surfaces of the wood.

Coyote Fencing Attached to Structures
While a popular fencing type in this area and often mandated by community associations, coyote fencing is another "ember magnet" that may eventually ignite and progress directly to the structure.

Separating the coyote fencing from the structure with a non-flammable material (such as an adobe, rock or block wall or metal fence), would alleviate the fire concern.

Flammable Material Used as Mulch Against the Structure
Wood chips are a popular choice of mulching for planting areas immediately adjacent to the structure. While it looks nice, areas of dried wood mulch are flammable and pose a threat to the structure.

Replacing wood mulch with gravel or other non-flammable material would alleviate the fire concern.

Vegetation Beyond the Home Ignition Zone
Reduction of Fuel Volume and Ladder Fuels

In forested areas, the recommended approach, known as "thinning from below," involves removal of smaller trees, brush, and dead and down materials to achieve the desired tree densities and effectively minimize the hazardous ladder fuels that often lead to crown fires. Implementation of the prescribed treatments will also reduce competition among the residual trees for sunlight and water, thus improving forest health. Encouraging the reestablishment of native grasses will also mitigate the fire hazard in specific areas.

To be most effective, fire safe practices need to be implemented on a community-wide basis. There is no guarantee that a wildfire will not occur in any of these communities, even if all of the recommendations in this report are implemented. Nonetheless, public awareness, neighbors helping neighbors, and concerned, proactive individuals setting examples for others to follow are among the most important initiatives involved in reducing the risk of wildfire ignition and managing the hazards inherent in wildland-urban interface areas.

Working Together
Combining Resources

Several community members with contiguous properties have already taken advantage of mitigation assistance offered through Natural Resources Conservation Service (NRCS) grants. By working together, the assessment and mitigation plan developed for each property takes into consideration the group of properties, developing a strategy that benefits all.

With the many small roads and compound type residential areas, organizing small neighborhood projects would be a great way to approach mitigation as a team effort.

In Summary
It is important to note that almost all of the concerns are easily correctable **without** large expenditures or extraordinary efforts. For the most part, these are matters that the average homeowner can address on a do-it-yourself basis. For more intensive efforts, utilizing state and federal assistance programs (NRCS EQIP program, currently) for neighborhood-wide projects can reduce cost significantly.

Next Steps

Assuming the assessment area seeks to achieve national Firewise Communities/USA recognition status, it will integrate the following standards into its plan of action:

- Invest a minimum of $2.00 annually per capita in its local Firewise activities. (Work done by volunteers, using municipal or other equipment, can be included, as can state/federal grants dedicated to that purpose.)
- Observe a Firewise Communities/USA Day each year that is dedicated to a local Firewise project.
- Submit an annual report to Firewise Communities/USA. This report documents continuing participation in the program.

The Firewise Recognition effort in Tesuque Valley has been made possible by a grant from the New Mexico Association of Counties Wildfire Risk Reduction Program, and has utilized resources from:

TESUQUE VALLEY FIREWISE ACTION PLAN

Tesuque Valley is a large community and as such will take time to fully involve in wildfire preparedness. These steps will require perseverance and patience, but are achievable over time. Start small, think big :)

ACTION	WHO DOES IT	TIME FRAME
1 Accessible Information: Have brochures, custom mitigation information, and any assistance opportunities available at every community event. Firewise committee members available to speak with community members	Firewise Committee WN TVFD	Ongoing Yearly at each community association meeting and annual events
2 Fuels Reduction Projects: Take advantage of any assistance for fuels reduction projects within the community	Firewise Committee WN	Ongoing Current NRCS EQIP projects are scheduled for 2017 Future sign up opportunities possible
3 Neighbor to Neighbor Communication: Encourage “sub-neighborhoods” (groups of homes on same road) to establish their own cooperative fuels reduction and wildfire awareness projects	Firewise Committee	Ongoing Encourage members of these neighborhoods to join Firewise committee via recruitment at community events
4 Encourage School Participation: Work with school to provide wildfire awareness within curriculum, or special events.	Firewise Committee WN	Ongoing Work with teachers to incorporate fire adapted/firewise principles into curriculum
5 Encourage Business Participation: Public facing businesses can promote firewise and encourage all businesses within area to create business continuity plans (see IBHS Open for Business) to reduce economic risk of wildfire	Firewise Committee WN	Ongoing special business events, business owners on Firewise committee can reach out to other business owners at community events
6 Post-Fire Preparation: Learn about post-fire resources and communicate to community	Firewise Committee WN	Ongoing Potential training for firewise committee member to become point person for post-fire response

Resources:

1 firewise.org - free brochures
2 wildfirenetwork.org - grant announcements, project profiles
3 tesuquevalleycommunityassociation.org - post projects, assistance opportunities
4 http://www.dnr.state.mn.us/education/wildfire/index.html - curriculum and activities for schools
5 https://disastersafety.org/ibhs-business-protection/ofb-ez-business-continuity/ - business planning
6 afterwildfirenm.org - resources and procedures for post-fire assistance